

THE IGS GLOBAL DATA CENTER AT THE CDDIS – AN UPDATE



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ABSTRACT

The Crustal Dynamics Data Information System (CDDIS) has served as a global data center for the International GPS Service (IGS) since its start in June 1992, providing on-line access to data from nearly 300 sites on a daily basis. The CDDIS provides easy and ready access to a variety of data sets, products, and information about these data. The specialized nature of the CDDIS lends itself well to enhancement and thus can accommodate diverse data sets and user requirements. This poster paper will present information about the GPS and GLONASS data and products archive at the CDDIS. General information about the system, the computer architecture, archive contents, and future plans, and its support of other international space geodesy services (the ILRS, IVS, and IDS) will be discussed.

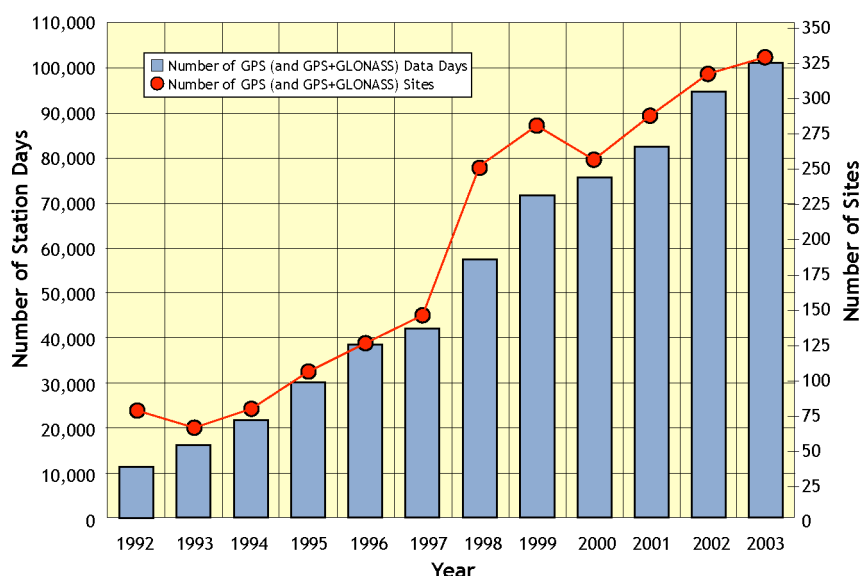


HISTORICAL PERSPECTIVE

GPS Data Archive:

- Daily (30-second) GPS data: January 1992 to present
Then: 31 sites/day, >11.1K station days/year
Now: 275 sites/day, >100K station days/year
0.35 Mbytes/site/day
- Hourly (30-second) GPS data: June 1998 to present
Then: 20 sites/day, observation files/day, > 90K observation files/year
Now: 135 sites/day, observation files/day, > 1.2M observation files/year
0.02 Mbytes/site/hour
- High-rate (1-second) GPS data: May 2001 to present
Then: 41 sites/day, 2,820 observation files/day, > 690K observation files/year
Now: 60 sites/day, 4,850 observation files/day, > 1.8M observation files/year
0.45 Mbytes/site/hour
- GPS data from LEO satellites: January 2002 to present
Then: data from SAC-C and CHAMP
Now: data from SAC-C, CHAMP, and Jason
2.5 Mbytes/satellite/day

GPS Data at the CDDIS
(1992-2003)



IGS Pilot Project and Working Group Support:

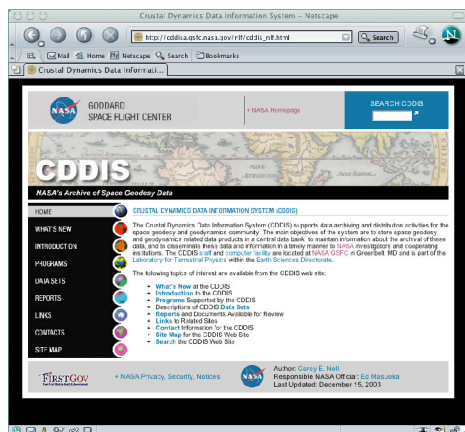
- Reference Frame (densification program): August 1995 to present
- Ionosphere Working Group: June 1998 to present
- Troposphere Working Group: January 1997 to present
Then: 110 sites/day
Now: 300 sites/day
3 Kbytes/site/day
- IGLOS Pilot Project: August 1998 to present
- TIGO Pilot Project: Mid-2001 to present



FUTURE PLANS

A new LINUX-based computer system and backup server were purchased in 2003 to replace the current CDDIS UNIX server. The new system has been configured with nearly 3 Tbytes of RAID disk space. This increased disk space will permit on-line availability of daily, 30-second GPS data since 1992. A dedicated tape backup system was also procured. Plans are to have this system operational as the main CDDIS on-line server in mid-2004.

The CDDIS web site will also be redesigned in 2004 to reflect the "NASA Look-and-Feel". A prototype of the home page for the new web site is shown at right.



INTRODUCTION

The Crustal Dynamics Data Information System (CDDIS) is a dedicated data center supporting the international space geodesy community since 1982, providing easy and ready access to a variety of data sets, products, and information about these data. The CDDIS serves as the NASA archive and distribution center for space geodesy data, particularly Global Positioning System (GPS), Global Navigation Satellite System (GLONASS), laser ranging, Very Long Baseline Interferometry (VLBI), and Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS) data. The specialized nature of the CDDIS lends itself well to enhancement to accommodate diverse data sets and user requirements.

The CDDIS serves as one of the primary data centers for the following International Association of Geodesy (IAG) services:

- International GPS Service (IGS)
- International Laser Ranging Service (ILRS)
- International VLBI Service for Geodesy and Astrometry (IVS)
- International Earth Rotation and Reference Systems Service (IERS)
- International DORIS Service (IDS)

Operational data centers deposit data to incoming disk areas on the CDDIS host computer. All data are processed to ensure data integrity and to extract pertinent metadata. These metadata are loaded into a relational database for data tracking and query purposes. Data are then copied to public directories and made available to the user community through anonymous ftp and the web.

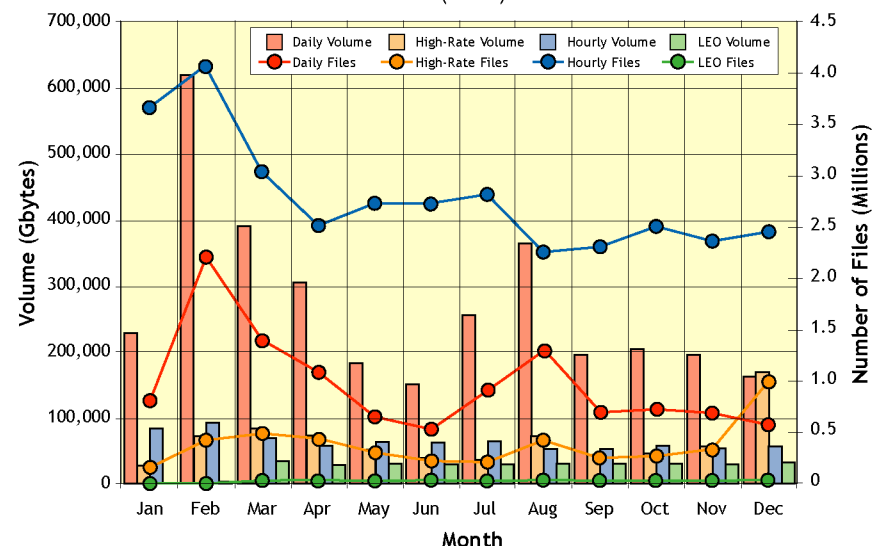


CDDIS ARCHIVE STATISTICS

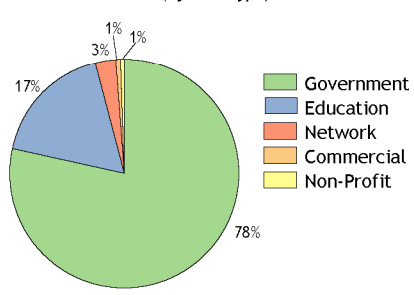
CDDIS GPS Archive Statistics for 2003:

- Number of Files Downloaded: ~55M
- Number of Distinct Hosts: ~7.1K
- Number of Distinct Countries: 95
- Size of Files Downloaded: ~5 Tbytes

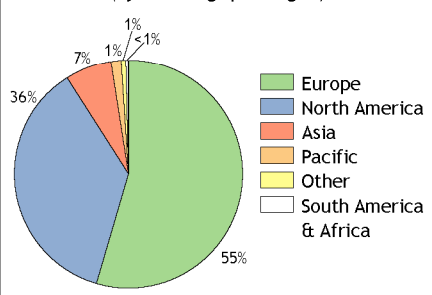
Monthly GPS Data Downloads from the CDDIS
(2003)



Number of GPS Files Retrieved in 2003
(by Host Type)



Number of GPS Files Retrieved in 2003
(by Host Geographic Region)



FOR FURTHER INFORMATION

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